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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/898,660	07/02/2001	Charles J. Schaeffer	054821-0116	5042

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EXAMINER

YUAN, DAH WEI D

ART UNIT PAPER NUMBER

1745

DATE MAILED: 05/01/2003

10

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/898,660	SCHAEFFER ET AL.	
Examiner	Art Unit		
Dah-Wei D. Yuan	1745		

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 15 April 2003.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 39-58 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 39-43 and 46-58 is/are rejected.

7) Claim(s) 44 and 45 is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 02 July 2001 is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.

2. Certified copies of the priority documents have been received in Application No. _____.

3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.

4) Interview Summary (PTO-413) Paper No(s) _____.

5) Notice of Informal Patent Application (PTO-152)

6) Other: _____

BATTERY WITH GRID

Examiner: Yuan S.N. 09/898,660 Art Unit: 1745 April 28, 2003

Election/Restrictions

1. Applicant's election with traverse of Group I-1, claims 39-58, in Paper No. 9 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)). Claims 59-126 have been canceled per applicants' amendment.

Specification

2. The continuation of application filed on 7/2/01 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no continuation of application shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: The recitation "applying a torsional stress to the grid element" in claim 40 and "applying a torsional stress to the grid wire element" in claim 41 are not supported in the originally filed application.

Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 40,41,46-52 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The limitations “applying a torsional stress to the grid element” in claim 40 and “applying a torsional stress to the grid wire element” in claim 41 are not disclosed or discussed in the instant specification. Instead, the specification only discloses the use of three methods, including stamping process, continuous casting and strip expansion process, to fabricate the battery grids.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 39,53-58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wirtz et al. (US 5,611,128) in view of Mistra et al. (US 5,851,695) as evidenced by Rao et al. (US 5,985,625).

With respect to claim 39, Wirtz et al. teach a production line to make positive and negative grids of a battery. The method comprises the formation of a web (24) of a

plurality of interconnected successive grid blank (26), which is continuously cast from a molten lead composition by a continuous casting machine. Figure 4 shows the battery grid including a network of a plurality of spaced apart grid elements (202). The grid elements are joined by one of a plurality of nodes (206). The web is reduced in cross section and elongated in the direction of travel by a series of compression roller machines. Subsequently, an electrochemically active paste is applied to the reduced web as it passes through the pasting machine. The pasted web is advanced by a powered belt conveyor into the cutting machine, which cuts the web (24) into individual pasted plate. See Column 3, Line 61 to Column 4, Line 4; Column 5, Lines 60-61; Column 6, Lines 10-12. However, Wirtz et al. do not teach a first transverse cross section of the grid element is different from a second transverse cross section of the opposed grid element. Mistra et al. teach a method to fabricate battery grid for a lead acid battery, wherein grid (88) includes an outer peripheral member (220,222) and intermediate members (224,226). See Figure 14. Mistra et al. disclose the longitudinally and vertically extending elongated members 224, 226 having diamond and triangular cross-sectional areas, respectively. Also, the outer peripheral member (220,222) are preferably of generally hexagonal cross section. See Figure 21. Mistra et al. also conclude that polygonal cross-section of various members provides enhanced paste adherence to the grid over that achieved if circular cross-section members are used. See Column 18, Lines 55-61; Column 19, Lines 5-25; 49-53. Therefore, it would have been obvious to one of ordinary skill in the art to modify the cross-sectional area of the grid elements in the method of making a battery of Wirtz et al., because Mistra et al. teach the resulting paste adherence to the battery grid can be enhanced if difference cross-sections, such as hexagonal and diamond, are

employed at the opposed ends of the grid element. Also, it is well known in the battery art that the conductive grid is also used as a current collector for the battery. This is supported in Rao (US 5,958,625). See Column 1, Lines 16-19.

With respect to claim 53, Figure 5 in Wirtz et al. illustrates the cross sectional configuration of a grid wire and a frame wire extending transversely of the web (24). See Column 3, Lines 3-6.

With respect to claim 54, the grid network is a web as shown in Figure 4.

With respect to claim 55, the battery grid is reduced in cross section and elongated in the direction of travel by a series of compression (deformation) roller machines. See Column 4, Lines 2-4.

With respect to claim 56, the pasted plates as described above are assembled in a battery cell (510) as shown in Figure 20.

With respect to claim 57, a diluted sulfuric acid is used as the electrolyte in the battery. See Column 10, Lines 51-54.

With respect to claim 58, the web contains a lug as shown in the top portion of Figure 4.

7. Claims 42,43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wirtz et al. (US 5,611,128) and Mistra et al. (US 5,851,695) as applied to claims 39,53-58 above, and further in view of Kao et al. (WO 99/27595).

With respect to claim 42, Wirtz et al. and Mistra et al. disclose a method of making a battery as described above in Paragraph 6. However, Wirtz et al. and Mistra et al. do not

disclose forming at least a portion of the grid by stamping. Kao et al. disclose a grid made by stamping, or punching the grid from a continuous sheet of lead material wherein the sheet may be formed by a continuous casting process or a rolling process. The grid shapes likely result from a progressive punching operation, i.e., features will be added to the grid through several punching operations. The punched strip is processed to add active material (paste) and a paper layer, and then the strip is cut onto individual grids. Kao et al. also teach that the battery grid formed by a stamping process has improved corrosion and electrical performance over those grids made by other processes. See Page 4, Lines 16-18; Page 5, Lines 4-10. Therefore, it would have been obvious to one of ordinary skill in the art to incorporate a stamping process in the fabrication of the grid elements into the method of Wirtz et al. and Mistra et al., because Kao et al. teach the battery grid made by stamping process has better corrosion and electrical performance.

With respect to claim 43, Wirtz et al. teach the transverse cross section of the grid element can have different shapes, such as hexagon, triangle or diamond. See Figure 21.

Double Patenting

8. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686

F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

9. Claims 39,42-45,53-55 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-14 of U.S. Patent No. 6,274,274 B1. Although the conflicting claims are not identical, they are not patentably distinct from each other. The instant application claims a method of making a battery, including battery plates, by forming a strip of interconnected grids, and forming at least a portion of the grid elements. While the '274 patent claims a method of making a plurality of battery plates comprising forming a strip of interconnected battery grids and deforming at least a portion of the grid wire element. The claims of the instant application encompasses the claims of the '274 patent.

Allowable Subject Matter

10. Claims 44,45 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claim 44 would be allowable because the prior art does not disclose or suggest each first transverse cross-section not to extend beyond the planar surfaces of the frame. Claim 45 would be allowable because the prior art does not disclose or suggest each second transverse cross-section not to extend beyond the planar surfaces of the frame.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dah-Wei D. Yuan whose telephone number is (703) 308-0766. The examiner can normally be reached on Monday-Friday (8:00-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan, can be reached on (703) 308-2383. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Dah-Wei D. Yuan
April 28, 2003

